proctor®
Security Systems

Megapixel IP Dome Camera

1.3MP/ 2.0MP/3.0MP

User Manual ver.2.0

www.proctorsystems.com

Safety Precaution

We appreciate your purchasing Proctor Megapixel IP Camera.
Before installing the product, please read the following with care

- Make sure to turn off the power before installing system.
- Do not install under the direct sunlight or in dusty areas.
- Make sure to use the product within the temperature and humidity specified in the specification.
- Do not operate the product in presence of vibrations or strong magnetic fields.
- Do not put electrically conducting materials in the ventilation hole.
- Do not open the top cover of the products. It may cause a failure or electric shock on the components.
- To prevent from overheating, make sure to keep the distance at least 10cm from the ventilation hole.
- Make sure proper voltage before connecting the power.

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1. Introduction

About this manual

This user manual provides information on operating and managing the premium network camera. The manual includes instructions of installation, operation and configuration of the system as well as how to make troubleshooting.

Features

Megapixel IP camera is megapixel network-based system with remote live monitoring, audio monitoring and control via an IP network such as LAN, ADSL/VDSL, and Wireless LAN.

Video

- Highly efficient compression algorithm, H.264 & MJPEG support
- Wide range of transmission rates: 32kbps ~ 10mbps
- Various transmission modes: CBR, VBR
- Motion detection

Audio

- Multi-transmission mode: Simplex (Megapixel IP camera à Client PC or Decoder, Client PC or Decoder à Megapixel IP camera), Full Duplex

Network

- Fixed IP & Dynamic IP (DHCP) support
- 1:1, 1:N support
- Multicasting
- Automatic transmit rate control according to network conditions
- ONVIF, PSIA compliant

Serial Data

- RS-485 support
- Data pass-through mode : Serial data communication between IP camera and decoder

Sensor and Alarm

- Support direct connections of external sensor and alarm devices
- Event Alarm

User Interface

- Diagnose and upgrade through dedicated program called True Manager
- System configuration using Internet Explorer

High Reliability

- Reliable embedded system
- System recovery by dual watch-dog functions

Product and Accessories

Megapixel IP Dome Camera

Quick Manual

SW and User Manual CD

Part Names and Functions

Rear View

Connector	Function
1. Ethernet/802.3af	Ethernet port/802.3af LED : Booting and system check
2. RESET Button	Initialization of network setting
3. AUDIO IN	Audio input
4. AUDIO OUT	Audio output
5. POWER IN	DC 12V
6. SENSOR/ALARM	Sensor input/ Alarm output
7. RS-485	RS-485 port
8. Composite Out	Composite Out
9. SD CARD	SD memory card slot

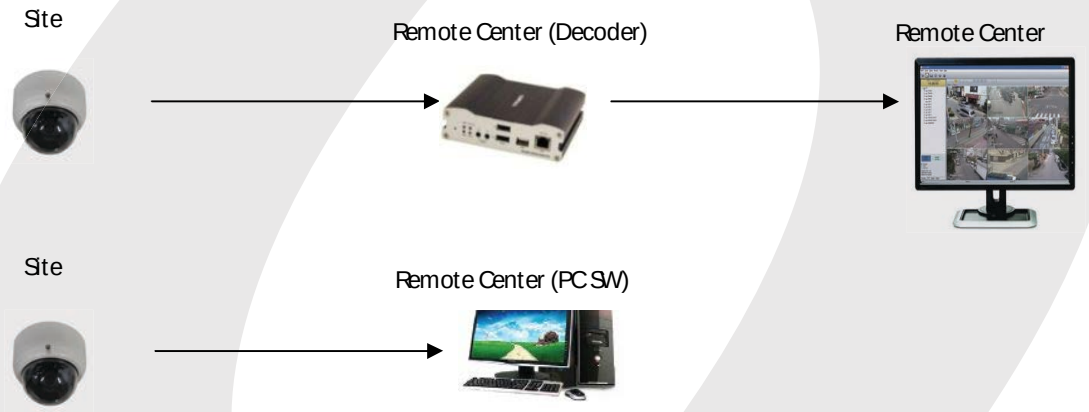
System Connections

IP camera can be connected in either 1 to 1 connection where one camera is connected to one PC client or a decoder system or 1 to many connections where one system can be connected to several PCs and decoder systems. (video server can work as a video decoder which takes the data from a video server or IP camera, decodes and outputs analog video.)

Topology

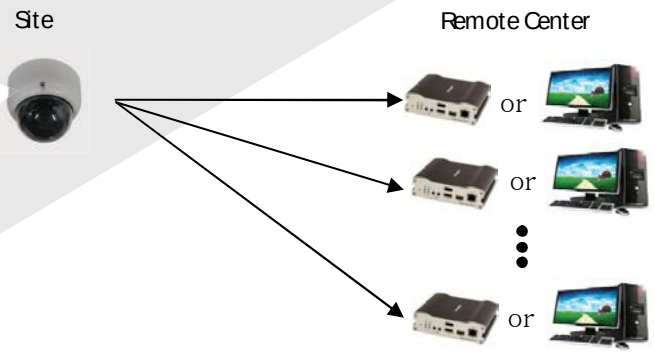
Generally, IP camera and PC or a decoder is connected in 1-to-1 mode or 1-to many con□guration.

l **1:1 Connection** .



One camera is installed at a site where video images are transmitted. A PC or a decoder is installed at a central location to receive and view the video images on an analog monitor. Audio and serial data are transferred in either direction.

l **1:N Connection** .

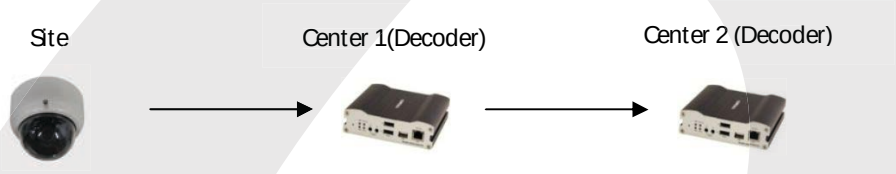


In this con□guration, a site can be monitored from many remote central locations. Maximum connections would be limited by network bandwidth connection. Functionally, the VMS (Video Management System) software provided can replace the decoder.

Multicast Mode

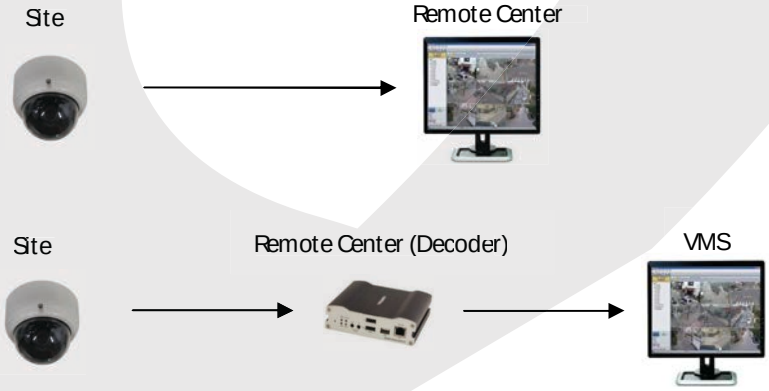
If the network supports multicasting, a large number of decoders can be used to receive video e□ectively from a camera using a single streaming of video and audio. However, multicast mode is possible only when network environment supports multicast.

Relay



Video and audio data can be retransmitted from a center to another center. The arrangement is useful when the network bandwidth to the site is limited while there are more than one center want to monitor the site.

VMS (Video Management System)



VMS (Video Management System) is a Window-based remote monitoring program in order to monitor or control video, audio, and events in real time from several IP cameras or video servers. Please refer to the VMS User Manual for more in detail.

2. Installation

Connecting Network (LAN)

- Connect the power adaptor to IP camera
- Connect network cable to ethernet port
- To display video through composite port, after connecting each port to a monitor, set **preview** option "ON" on the web-viewer page.

Connecting Audio

Audio is full-duplex. It is possible to set the mode as Tx-only, Rx-only or Tx-Rx.

- Connect audio input and output ports to audio devices accordingly.
- The Audio signal required is line level, so audio equipment with an amp, mixer or other amplifier should be used.

Connecting Serial Ports

RS-485 of IP camera can be connected to external equipment such as PT receiver etc. PC client can send PT commands to the external equipment via the serial port.

When a decoder system instead of PC client is connected to IP camera, the serial port and that of the decoder system works in pass-through mode. That is, data from one port is delivered to the other port, vice versa.

Connecting Sensor and Alarm

Connect sensor and alarm devices to corresponding terminals accordingly.

Connecting Power

After confirming the power source, connect power adaptor and connect the 12VDC connector to the IP camera.

Check if it Works

Once the power is supplied to the IP camera, it will start booting. The IP camera will boot up to an operating mode after approximately 40-60 seconds. The green LED on the Ethernet port will flash indicating the IP camera is ready.

Software provided on the disc called True Manager allows you to check the IP address and other network details of the IP camera. Please refer to the True Manager manual for instructions on how to find the IP address of the IP camera and if required changing it.

3. System Operation

Remote Video Monitoring

There are two ways to monitor video when the center system and IP camera are connected. In order for a proper operation, an IP address must be set accordingly. Please refer to **True Manager Manual enclosed with product** for further details.

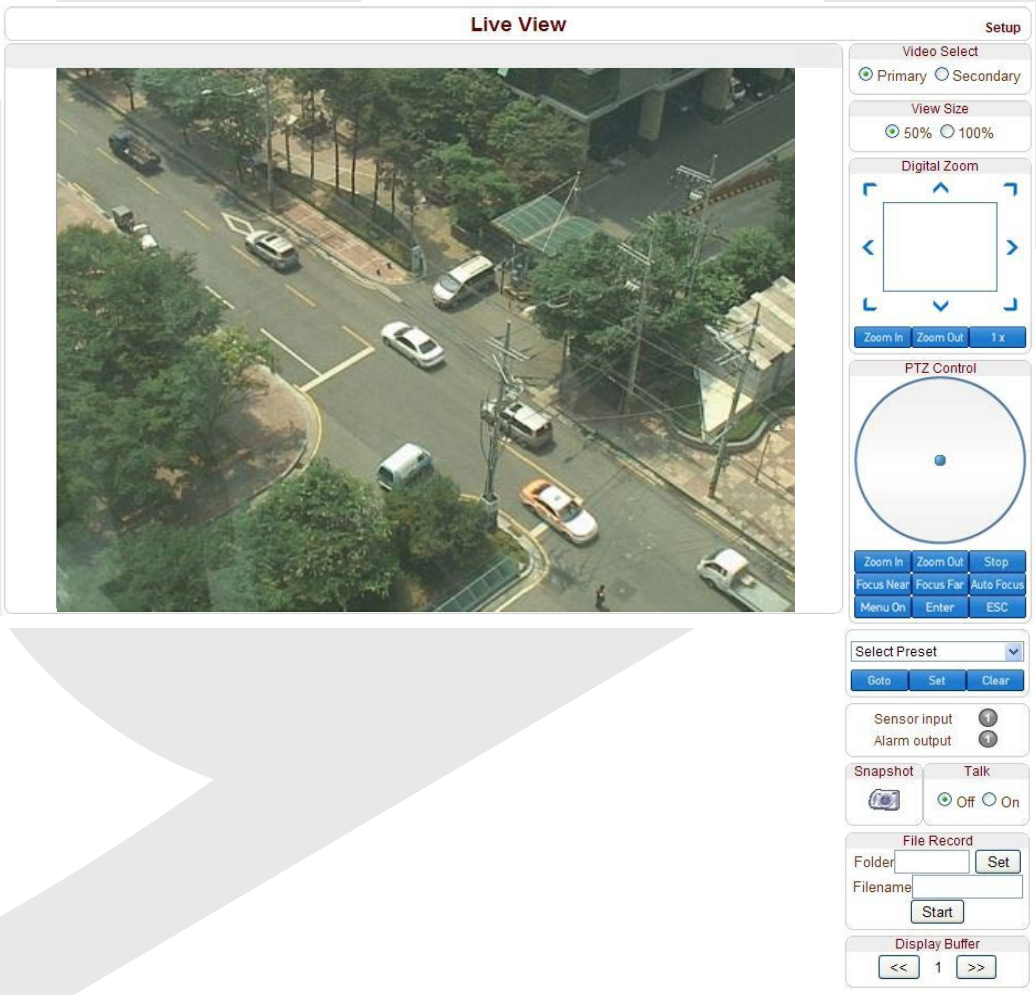
Default ID : admin	Default Password : 1234

.

Video Monitoring using Internet Explorer

Open Internet Explorer and enter camera's IP address. The system will ask for confirmation to install Active-X control. Once authorized, the Internet Explorer will start to display video images from camera as shown below.

Default IP Address : http://192.168.10.100



- **Video Select**

  Select the Video stream to be viewed: Primary or Secondary

  This camera is capable of dual streaming; primary streaming and secondary streaming.

  Video will be displayed according to the resolution set on video con□guration. If dual streaming (**"Use Dual Encode" Menu in Video page**) is not activated, secondary video is not available

- **View Size**

  Adjust the Screen size

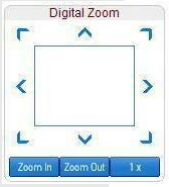
  Screen size is initially adjusted according to the compression resolution. If you click 50% icon, the whole screen size will be reduced to half size.

- **Digital Zoom**

  Control the Digital zoom on the screen

  The more the camera zooms in, the smaller the square of control panel is. Position of the image can be changed by moving position of the square.

  If you press **x1,** the screen will return to the normal size.



- **PTZ Control (Optical Zoom & Digital zoom built-in the camera)**

  Control PTZ and PTZ Control Panel is used for controlling external PTZ devices when the external PTZ devices are connected through serial port.

  It is possible to make zooming control by **Zoom in/out** buttons of PTZ control Panel (In order to use digital zoom, select **Digital zoom ON** in the **Camera** tab)

- **Stop**

  Stop on-going PTZ action.

- **Focus Near, Focus Far, Auto Focus**

  Adjust the focus of the lens

- **Select Preset**

  Set preset position and move to the speci□c preset position.

- **Goto** : Move to the selected preset entry if the preset entry is set.
- **Set** : Set the current position to the selected preset entry.
- **Clear** : Delete the selected preset entry.

- **Sensor Input**

  Display the status of the sensor in real time.

  This camera supports one sensor input. When the sensor of the camera is working, the sensor light turns red.

- **Alarm Output**

  Operate the alarm device by pressing the number icon

  This camera supportsone alarm output. A number icon indicates status of the alarm device.

- **Snapshot**

  Capture video images and store them as BMP or JPEG files.

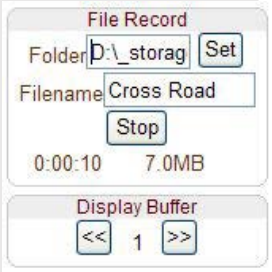
- **Talk**

  Transfer audio from PC's mic to the camera.

- **File Record**

  Recording to an AVI file on Live View page is available. AVI files are generated in the specified folder or in specified file name on the PC where web browser is running.

1. Press " **Set** " button to select folder or create a new folder. Enter the file name on Filename field.
2. Press **"Start"** button to start to record.
3. Press **"Stop"** button to stop to record.
4. AVI file named " **IP address_hh_mm_ss"** or "**File name_IP address_hh_mm_ss"** will be generated in the specified folder depending on whether the path specified a folder or a prefix of the file name.



- **Display Buffer**

  Set the number of video frames to be buffered before being displayed on web browser. Larger value results in smoother video by sacrificing the latency. A setting of 10 ~ 15 frames can be used generally for most situations.

Video Monitoring with Decoder System

Once camera's IP address is set in the remote IP address section of the decoder, the decoder system will connect to camera and start receiving the video images. Normally, a monitor connected to the decoder will display video images

Initialization of IP address

If a system IP address is lost, the system can be reset to the system default IP address using the reset button in the back side of the system.

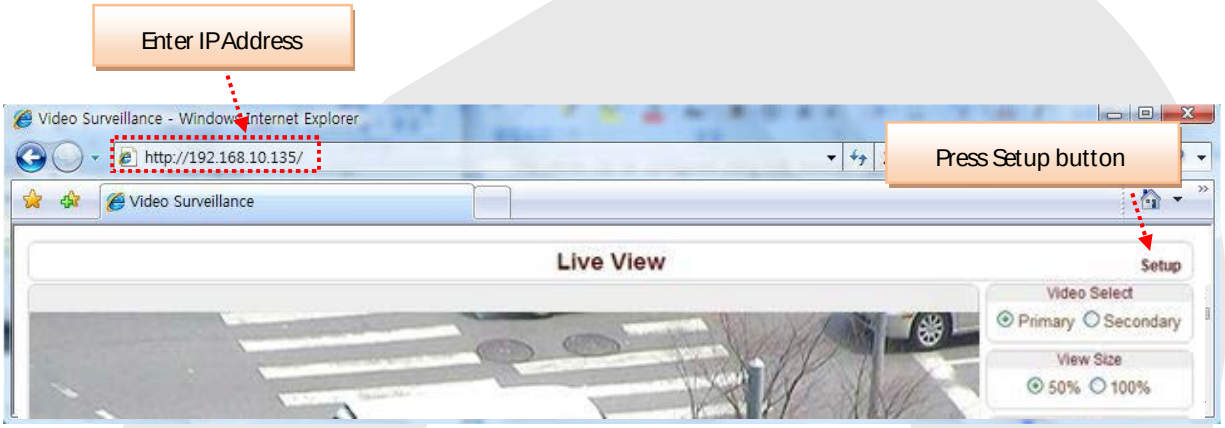
1. Whire systme is in operation, press the reset button for more than 5 seconds.
2. The system will reboot automatically
3. Once the system reboots, IP address will be set to the system default as below.

◦ IP mode	Fixed IP	◦ IP address	192.168.10.100
◦ Subnet mask	255.255.255.0	◦ Gateway	192.168.10.1
◦ Base port	2222	◦ HTTP port	80

4. Remote Configuration

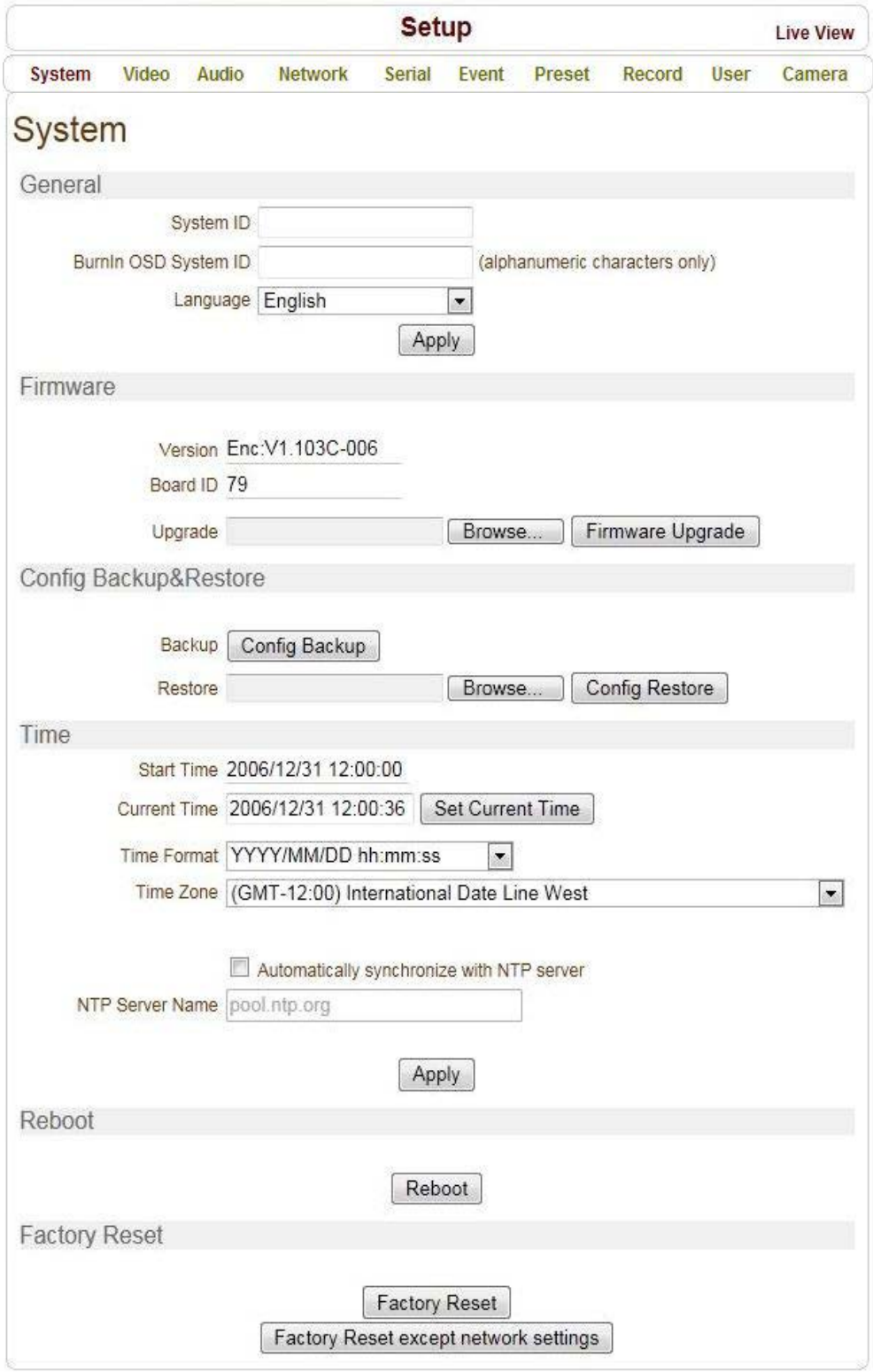
Using Web Brower

Remote setting is available by using web browser. Enter IP address of camera and then a live view screen appears as below. Press **Setup** button located in the upper right area of the monitoring screen to go to the server setup. For Remote Setting, user should be authorized higher than manager level.



The configurations are grouped into 10 categories: **System** , **Video** , **Audio** , **Network** , **Serial** , **Event, PTZ, Record, User and Camera.** Any configuration changes are not applied until **Apply** button is pressed. Leaving the page without pressing **Apply** button, any changes in the page will be discarded.

System Con□guration



General

- **System ID**

  Enter System ID that is used as a camera title

  The set System ID is displayed with video image on Web browser. The System ID is also transferred to remote software, such as VMS, and displayed on it.

- **Language**

  Select the language to be used for web-based con□guration

Firmware

- **Firmware version**

  Display the current □rmware version

- **Board ID**

  Display the Network board ID of the camera recognized by system

- **Upgrade**

  Upgrade □rmware

1. Press **Browse** button to select a □rmware □le from PC.
2. Press **Firmware Upgrade** button to start to upgrade.
3. Messages for showing status (downloading / upgrading) will be displayed.
4. The camera will reboot automatically after completing upgrade. **Do not turn the camera o□ during upgrading**

Config Backup & Restore

- **Backup**

  All the setting of configuration can be stored.

- **Restore**

  Stored configuration can be browsed and restored. The server is rebooted once **Config Restore** button is pressed.

Time

- **Start Time**

  The latest the camera's booting date and time

- **Current Time**

  Current date & time

  Enter a new date and time and press **Set Current Time** button to update date & time

- **Time Format**

  Change the time format. Selectable time formats are as below

- YYYY/MM/DD hh:mm:ss (Ex. 2010- 4-11 18:18:42)
- DD/MM/YYYY hh:mm:ss (Ex.11- 4-2010 18:18:42)
- MM/DD/YYYY hh:mm:ss (Ex. 4-11-2010 18:18:42)

- **Time Zone**

  Select time zone of where the camera is installed.

  Depending on the time zone, Daylight Saving Time will work automatically

> A **time zone** is a region of the earth that has uniform standard time, usually referred to as the **local time**. By convention, time zones compute their local time as an offset from UTC (Coordinated Universal Time). In casual use, GMT (Greenwich Mean Time) can be considered equivalent to UTC. Local time is UTC plus the current time zone offset for the considered location

- **Automatically synchronize with NTP server**

  Synchronize the camera time with an NTP server using NTP (network time protocol).

  Name of the NTP server should be registered on NTP server Name.

> The **Network Time Protocol** (**NTP**) is a protocol for synchronizing the clocks of computer systems over packet-switched, variable-latency data networks. It is designed particularly to resist the effects of variable latency by using a jitter buffer.

Reboot

- Reboot the camera.

  Do not press the Reboot button unless the server needs a reboot.

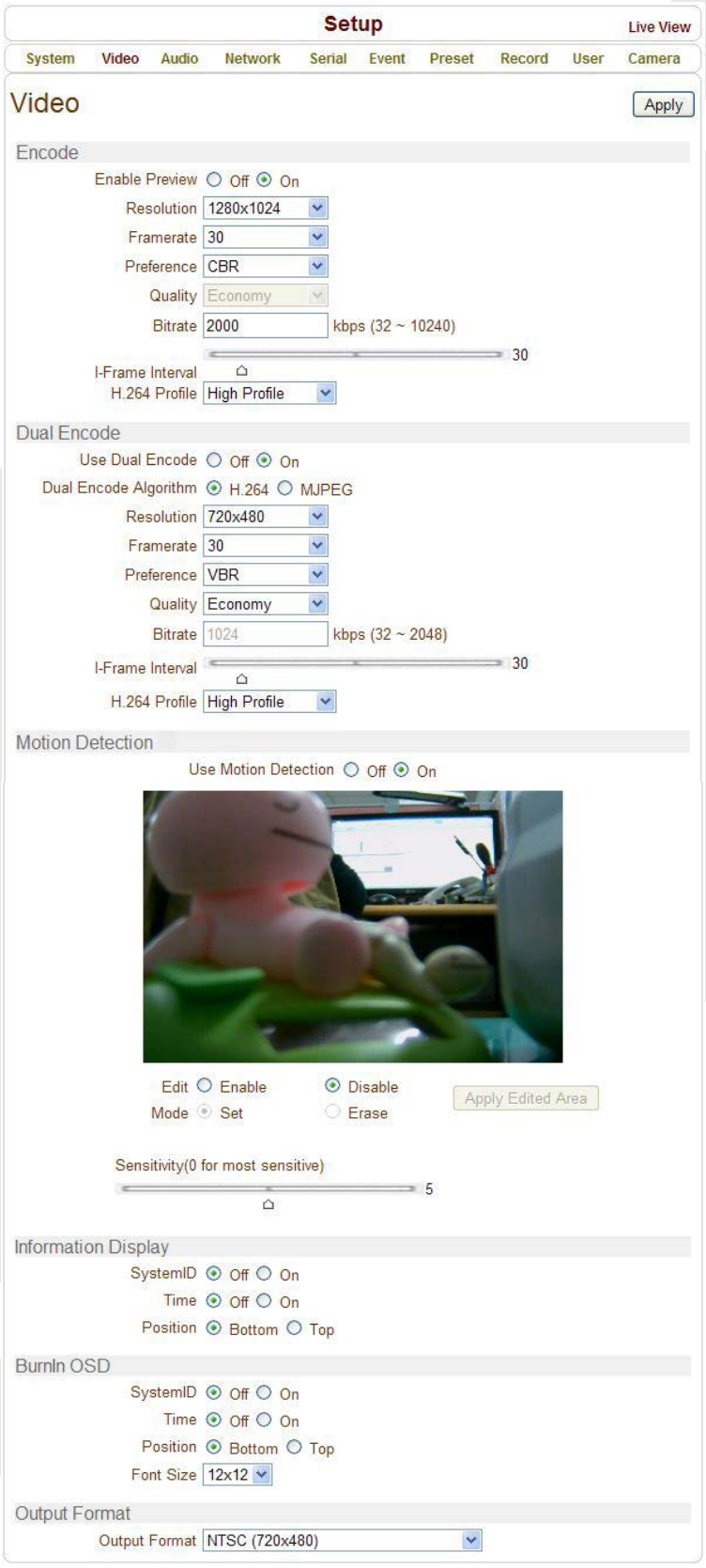
Factory Reset

- All settings including user accounts and logs are cleared.

Factory Reset except network settings

- All the settings except for current network settings are changed to default values.

Video Con□guration



Encode

- **Enable Preview**

1. Select **ON** to enable to display video on the monitor that is connected to the composite or HD-SDI video port.
2. Select the **Output format** accordingly in the end of the Video page.

Note that when **Enable Preview is ON** , dual streaming is not available.

When the video is transmitted directly to the monitor through BNC cable, the video does not go thorough network and encoding. Therefore, there is less delay and no an effect from network limitation.

- **Resolution**

Select video encoding resolution.

- **Framerate**

Determine the maximum number of frames per second for the video stream.

1,2,3,4,5,6,8,10,15,20,25 and 30 frame rate can be selected. The actual frame rate of video can be less than the maximum frame rate set due to the network bandwidth limitation

- **Preference**

Select encoding mode to control video quality or bitrate: Quality(VBR) or Bit rate(CBR).

If 'Bitrate' selected, the video encoding will be effected by the 'Bitrate' value entered. Therefore, "Bitrate" mode corresponds to CBR (Constant Bit rate) encoding.

If 'Quality' selected, the video encoding will be effected by the quality of image selected. Therefore, "Quality" mode corresponds to VBR (Variable Bit Rate) encoding.

- **Quality**

Select Video quality. 7 levels of quality are available.

Quality mode (VBR encoding) tries to encode every frame in a constant quality. Therefore, resulting bitrate may vary a lot depending on the complexity or activity changes in the input video. It is preferred when constant video quality is required and network bandwidth is enough for delivering the stream of highly varying bitrate.

- **Bit rate**

Determine bitrate value between 32 ~ 10240kbps.

Bitrate mode (CBR encoding) allows you to set a fixed target bitrate that consumes a predictable amount of bandwidth. In order to keep the bitrate limit, video quality is controlled dynamically according to the complexity or activity changes in the input video.

- **I-Frame Interval**

Determine I-frame Interval between 1 and 255.

l **H.264 Pro□le**

Select H.264 Pro□le: **High Pro□le** or **Baseline Pro□le**

The standard de□nes various sets of capabilities, which are referred to as pro□les, targeting speci□c classes of applications.

- **High Pro□le (HiP)**

The primary pro□le for broadcast and disc storage applications, particularly for high-de□nition television applications (for example, this is the pro□le adopted by the Blu-ray Disc storage format and the DVB HDTV broadcast service).

- **Baseline Pro□le (BP)**

Primarily for low-cost applications that require additional data loss robustness, this pro□le is used in some videoconferencing and mobile applications. This pro□le includes all features that are supported in the Constrained Baseline Pro□le, plus three additional features that can be used for loss robustness (or for other purposes such as low-delay multi-point video stream compositing).

Dual Encode

l **Use Dual Encode**

1. Select **O□** button on the **Enable Preview** to enable to use Dual Encode
2. Select **ON** to enable to use Dual Encoding

   The secondary video can be viewed on **Live View** window by selecting **Secondary** on **Video selection**

l **Dual Encode Algorithm**

Select H.264 or MJPEG for the secondary streaming.

In case of H.264, either Bitrate mode or Quality mode can be selected for Preference mode in. On the other hand, MJPEG supports **Quality** mode only.

Motion Detection

- **Use Motion Detection**

  Determine to use **Motion Detection** function

- **Motion Detection Area Editing**

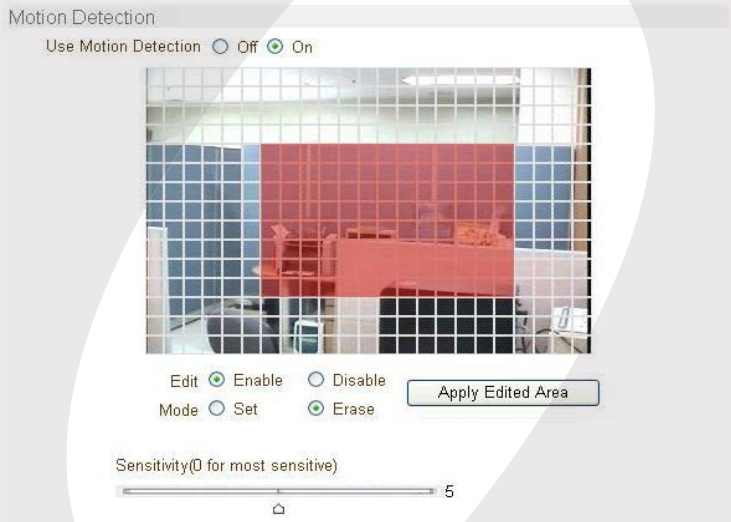
  Configure regions for motion detection. Regions of arbitrary shape can be configured by the following steps.

  Select **Enable** on **Edit** tab

  Select editing Mode. **Set** is for including cells to motion detection region and **Erase** is for excluding.

  Select cells using the right button of the mouse. Multiple cells can be selected conveniently by press and dragging.

  Press **Apply Edited Area** to save the editing



- **Sensitivity**

  Sensitivity is the condition to trigger an event of motion detection.

  The value determines the sensitivity of the motion detection within a block: the smaller, the more sensitive. It is selectable from 0 to 10.

Information Display

System ID and/or server time can be display over the video window in Internet Explorer. Each item can be turn on or off separately, and position also can be configured. This information is displayed **after the video is decompressed.**

BurnIn OSD

Insert system ID and date/time **in the compressed video** . System ID and time respectively can be turned on or o in the video. Position and Font size can be con gured also. System ID for BurnIn OSD exists independently from normal System ID.

Note that size of Burnin OSD display varies according to the encoding resolution setting. This is inevitable because Burnin OSD is inserted to the frames before encoding is performed. The following table describes the rule for BurnIn OSD display.

Resolution	Small (8x8)	Middle (16x16)	Large (32x32)
352x480 / 352x240 / 352x576 / 352x288	2	1	0
720x480 / 720x240 / 720x576 / 720x288 / 640x480 / 800x600	2	2	1
1024 x 768 / 1280x720 / 1280 x 960 / 1280x1024 / 1440x900 / 1600x900 / 1680x1050 / 1920x1056 / 1920x1080 / 2048x1536 / 2560x1600 / 2592x1936	2	2	2

2 : Both System ID and Time are displayed

1 : Either System ID or Time can be displayed. When both are enabled, System ID is displayed.

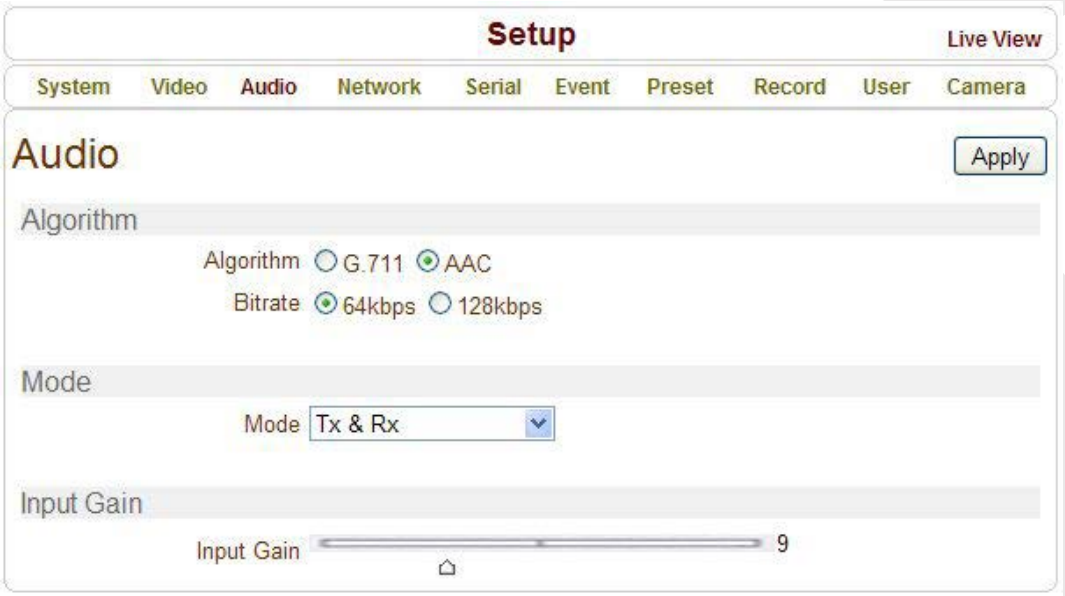
0 : No items are displayed. This is because video area is too small to display OSD text in large text.

Output Format

Output Format menu appears only when **Enable Preview** is on.

Select the output format for the monitor preview according to the video output and monitor speci cation.

Audio Con□guration



Algorithm

- **Algorithm**

  Select the audio algorithm: G711 or AAC

  G711 and AAC from client to server direction are supported. Thus, bidirectional audio communication is supported.

- **Bit rate**

  Select the bitrate between 64Kbps and 128kbps when AAC is selected

  The sampling rate is □xed to 8KHz and 32KHz for G711 and AAC respectively.

  Note that when camera is connected to a decoder, the decoder's audio algorithm should be set identically to transmit audio properly.

Mode

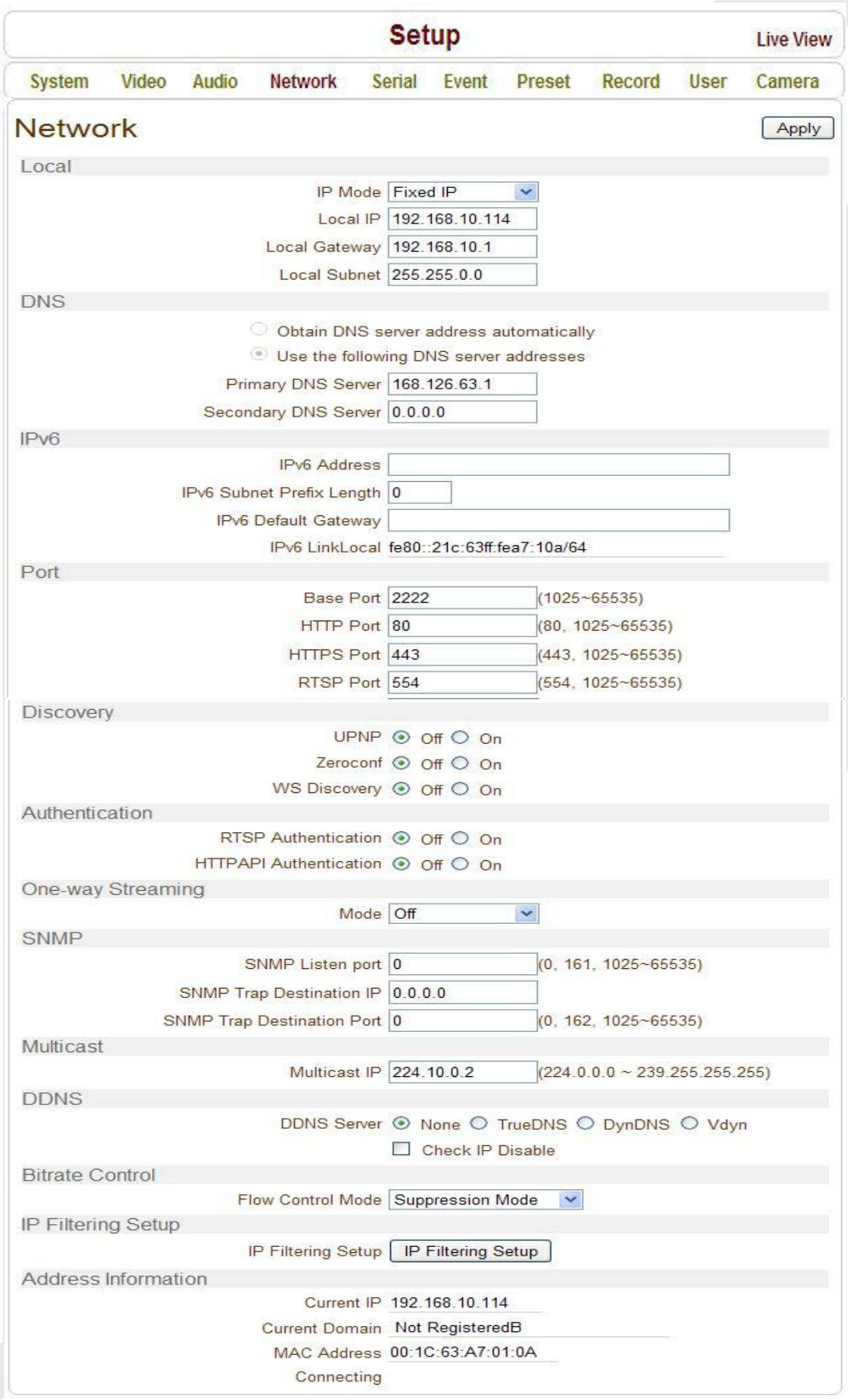
- Select audio operation mode

Mode	Action
O□	No operation
Tx-Only	Transmit only
Rx-Only	Receive only
Tx & Rx	Transmit and Receive

Input Gain

- Set audio input gain from 0 to 31.

Network Con□guration



Local

- **IP mode**

  Select the IP mode: Fixed IP or DHCP (Dynamic Host Con□guration Protocol)

  Depending on the selected mode, further con□guration items come as follows

IP Mode	Selection	Description
Fixed IP	Local IP	Fixed IP address
	Local Gatewa y	Gateway IP address
	Local Subnet	Subnet mask
DHCP	N/A	

☞ Please ask IP address information from ISP provider or network manager.

DNS

- **Obtain DNS server address automatically**

  Get DNS server address automatically when IP mode is DHCP.

- **Use the following DNS server addresses**

  Enter the DNS server IP address.

- Primary DNS server
- Secondary DNS server

> **Domain Name System** (**DNS**) is a database system that translates a computer's fully quali□ed domain name into an IP address. Networked computers use IP addresses to locate and connect to each other, but IP addresses can be di□cult for people to remember. For example, on the web, it's much easier to remember the domain name www.amazon.com than it is to remember its corresponding IP address (207.171.166.48). Each organization that maintains a computer network

Ipv6

- **Ipv6 Address**

  Enter the deginated Ipv6 address.

- **Ipv6 Subnet Pre□x Length**

  Enter the bit number of Ipv6 Subnet.

- **Ipv6 Default Gateway**

  Enter the deginated Ipv6 gateway.

- **Ipv6 Link Local**

  Display Ipv6 Link Local.

Port

- **Base Port (1025 ~ 65535)**

  Enter the Base Port number.

  Network base port is use for communication with remote clients. In order for camera and remote systems (decoder or VMS, NVR software) to be connected, the port number must be identically configured in camera side and client side.

- **HTTP Port (80, 1025 ~ 65535)**

  Enter HTTP port used for web-based connection

- **HTTPS Port (443, 1025 ~ 65535)**

  Enter HTTPS port used for secured HTTP connection.

- **RTSP Port (554, 1025 ~ 65535)**

  Enter RTSP port used for RTSP-based connection. The default RTSP port is 554

  RTSP (Real Time Streaming Protocol) is a standard for media streaming between server and client.

Discovery

- **UPNP**

  By setting **UPNP** to ON, it allows the discovery by the client according to UPNP (Universal Plug and Play) protocol.

- **Zeroconf**

  By setting **Zeroconf** to ON, it allows the discovery by the client according to Zeroconf protocol.

- **WS Discovery**

  Discovery function based on web service is enabled. It allows the discovery by Client SW which is supporting Onvif.

Authentication

- **RTSP Authentication**

  If **RTSP Authentication** set to **ON**, user in the client side is asked to enter User ID and Password.

- **HTTP API Authentication**

  When **HTTP API authentication** set to **ON**, HTTP Authentication is asked for all clients which use HTTP API.

One-way Streaming

l This IP camera provides two kinds of one-way(unidirectional) streaming based on UDP to clients: **RTP** and **MPEG-TS** . Both are a kind of broadcasting where tra□c from client to server is not generated at all.

l **RTP (Real-Time Transport Protoco** l) is an Internet protocol used for transmitting single real-time multimedia data such as audio and video to a select group of connected clients. Normally RTSP uses RTP to format packets of multimedia content. **RTP** menu is used when the RTP only streaming without RTSP connection. RTP stream will be transmitted to the destination set. The SDP (Session Description Protocol) □le can be found in the server, and a client can retrieve it using http connection.

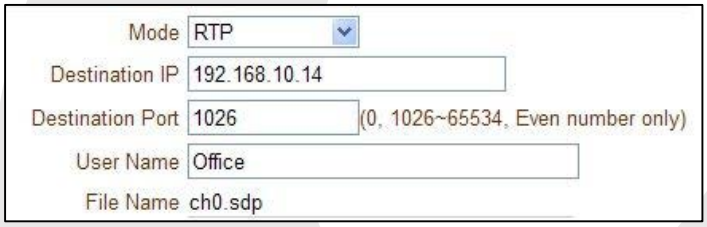
Related settings are as follows:

- **Destination IP** : Set the IP Address of the destination system which will receive RTP stream

  If the system is decoder, RTSP authentication information can be entered in the middle of RTSP URL as follows:

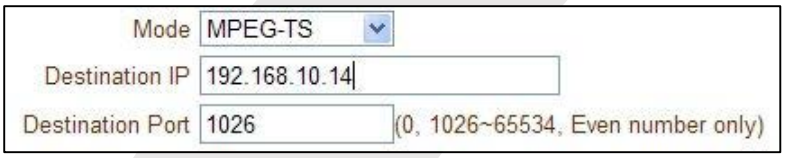
  rtsp://**admin:1234** @192.168.10.100:554/video1

- **Destination Port** : Set the Port of the destination system which will receive RTP stream
- **User Name** : Enter the User name that will be used as session name in the SDP □le.
- **File Name** : Enter the □le name that will be used as the name of the SDP □le. Then, it can be accessed through http://ServerAddress/□lename



l **MPEG-TS** is a standard format for transmission and storage of audio, video, and data,[7] and is used in broadcast systems such as DVB and ATSC. Transport Stream is specified in MPEG-2 Part 1, Systems (formally known as ISO/IEC standard 13818-1 or ITU-T Rec. H.222.0). Transport stream specifies a container format encapsulating packetized elementary streams, with error correction and stream synchronization features for maintaining transmission integrity when the signal is degraded.
As MPEG-TS itself supports only AAC as the audio algorithm, only video is streamed when audio algorithm is set to G711.
Related settings are as follows:

- **Destination IP** : Set the IP Address of the destination system which will receive MPEG-TS stream
- **Destination Port** : Set the Port of the destination system which will receive MPEG-TS stream



SNMP

Setup for using SNMP (Simple Network Management Protocol). It is compatible to both SNMPv1 and SNMPvec. Settings for using SNMP (Simple Network Management Protocol) are as following

l **SNMP Listen Port(0, 161, 1025 ~ 65535):** The port is for connecting external devices when system operates as a SNMP client. SNMP is not used by setting 0 value.

l **SNMP Trap Destination IP** : Set the SNMP Trap Destination IP.

l **SNMP Trap Destination Port (0, 162, 1025 ~ 65535):** Set the SNMP Trap Destination Port. SNMP is not used by setting 0 value.

> **Simple Network Management Protocol (SNMP)** is used by network management systems to communicate with network elements. SNMP lets TCP/IP-based network management clients use a TCP/IP-based internetwork to exchange information about the configuration and status of nodes. SNMP can also generate trap messages used to report significant TCP/IP events asynchronously to interested clients. For example, a router could send a message if one of its redundant power supplies

Multicast

l **Multicast IP**

The Multicast menu is used for configuring the multicast IP address to which media stream is delivered when a client such as a Decoder, VMS or NVR software is connected in multicast mode. The multicast IP address selection range is between 224.0.0.0 and 239.255.255.255. The selection can be used only when media protocol is set to Multicast.

DDNS

Select the DDNS (Dynamic DNS) server to use. One of the two servers can be selected.

- **True DNS:** TrueDNS service is used in this mode. Systems can be registered on the website for TrueDNS service: http://ns1.truecam.net . System will get a domain name of xxx.truecam.net style. Please refer to user guide document for True DNS service.

- **DynDNS:** DynDNS service is used in this mode. Refer www.dyndns.org for details. ID, Password and Domain name are needed when DynDNS is set.

> **Dynamic DNS** is a method, protocol, or network service that provides the capability for a networked device, such as a router or computer system using the Internet Protocol Suite, to notify a domain name server to change, in real time (ad-hoc) the active DNS configuration of its configured hostnames, addresses or other information stored in DNS.

- **Vdyn:** Vdyn is a DDNS service provided by Visionica (http://visionica.com). No further configuration is required for using this service. It internally uses MAC address for the registration. When it succeeds, the domain name of the form 001C63A607EC.visionica.info is displayed on CurrentDomain entry of Network page. E-mail setting is not mandatory.

- **Check IP Disable:** If "Check IP Disable" is selected, it will skip to check its own IP. In Fixed IP mode, the set IP will be registered on DDNS server. In DHCP mode, dynamically assigned IP will be registered on DDNS server. Normally **Check IP Disable** should be unchecked in order to obtain public IP in the network.

Bitrate control

When there are more than one client connected to the camera, due to bandwidth difference among the clients some of them do not have enough bandwidth to receive encoded stream completely. In this case, it is possible to select the way to stream video to clients as following.

- **Frame Drop Mode:** Encoding is performed strictly according to video settings. When a client is connected through a network with less bandwidth, it may not receive all the frames. That is, frames are dropped on sending module if the network is bottlenecked.
- **Suppression Mode:** Encoding bitrate and frame rate are adjusted not to drop any frames when the network bandwidths to some clients are limited. In this case, all clients can be affected by the averaged bitrate and frame rate.

Address Information

Followed network information is displayed (Read only)

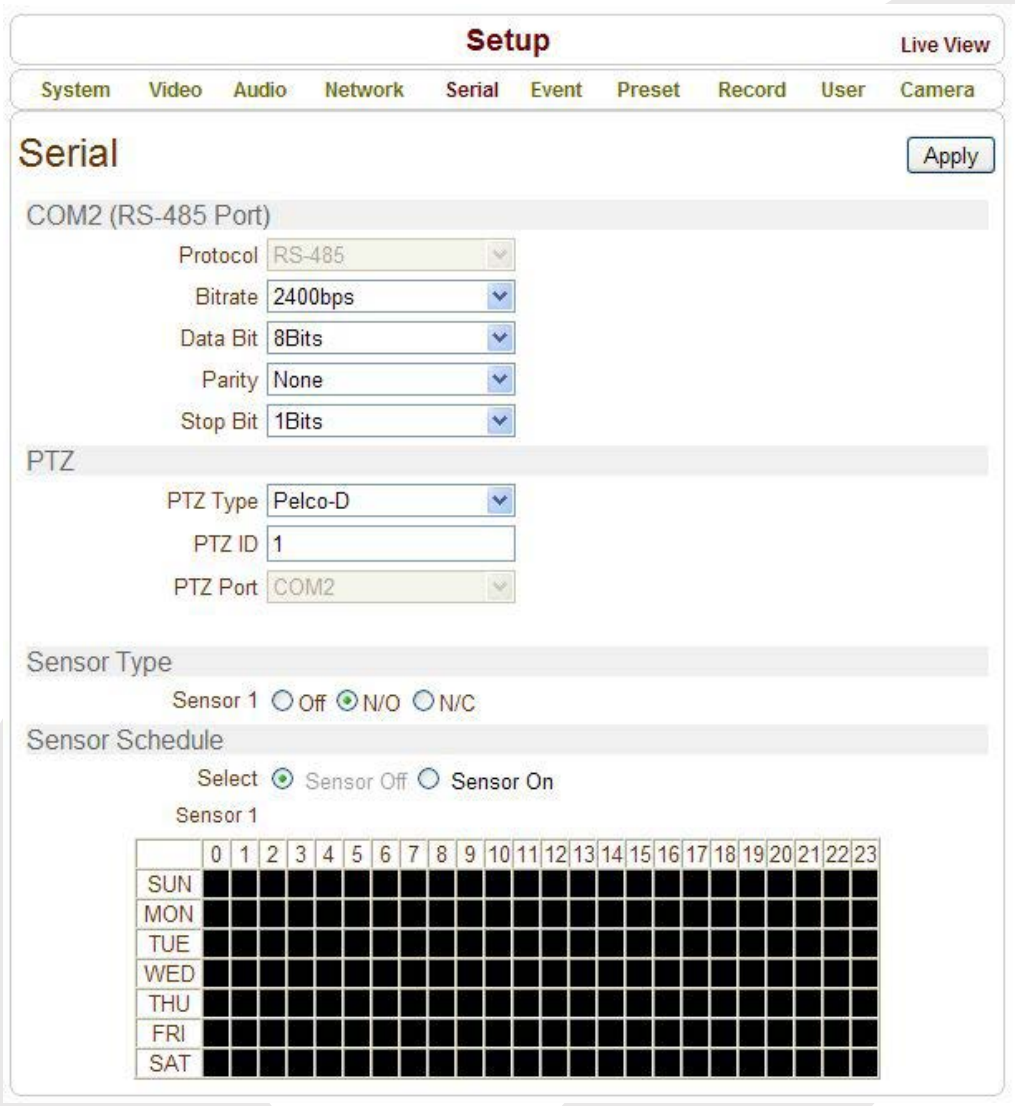
- **IP Address:** The Camera own IP address. This information is useful when the camera's IP mode is set to DHCP.

- **Domain Name:** In case the camera is registered at DDNS server, the registered domain name is displayed.

- **MAC Address:** Display the MAC address of the camera. In case the camera is registered at DDNS server, the MAC address is used in DDNS registration.

- **Connecting:** Client IP Addresses that are currently connected to system are listed. (1) Indicates

Serial Con□guration



Serial Port Con□guration

l **Serial Port Information**

This camera supports one RS-485 serial port

By default, Pelco-D protocol is used with 2400bps baudrate.

Sensor Type

l There is one sensor input port on Megapixel IP camera.The sensor port can be con□gured to the following.

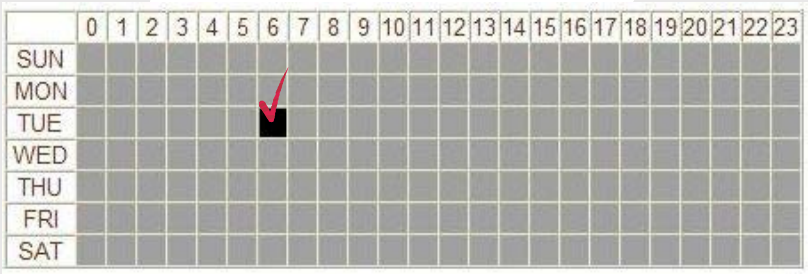
Function	Operation
OFF	Not used
NO (Normally Open)	The port is normally open and activated when closed.
NC (Normally Closed)	The port is normally closed and activated when opened.

The function of the sensor port is set based on the type of the sensor connected.

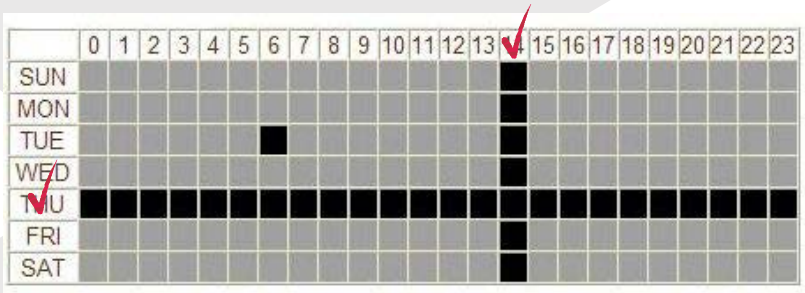
Sensor Schedule

l Choose **Sensor OFF** or **Sensor ON** and click the below schedule cells to make Sensor Schedule according to day of week and hour.

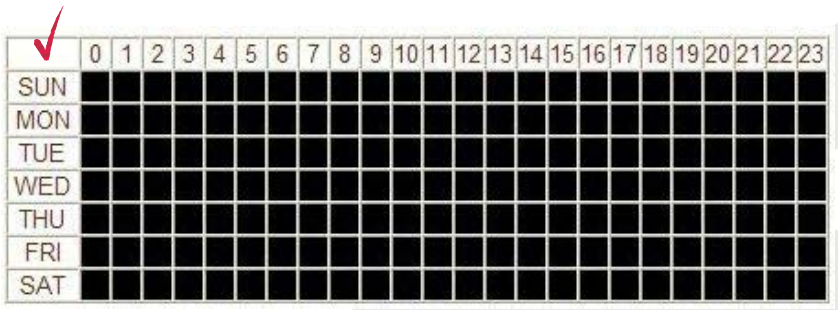
- Click desired "Cell" to set schedule.



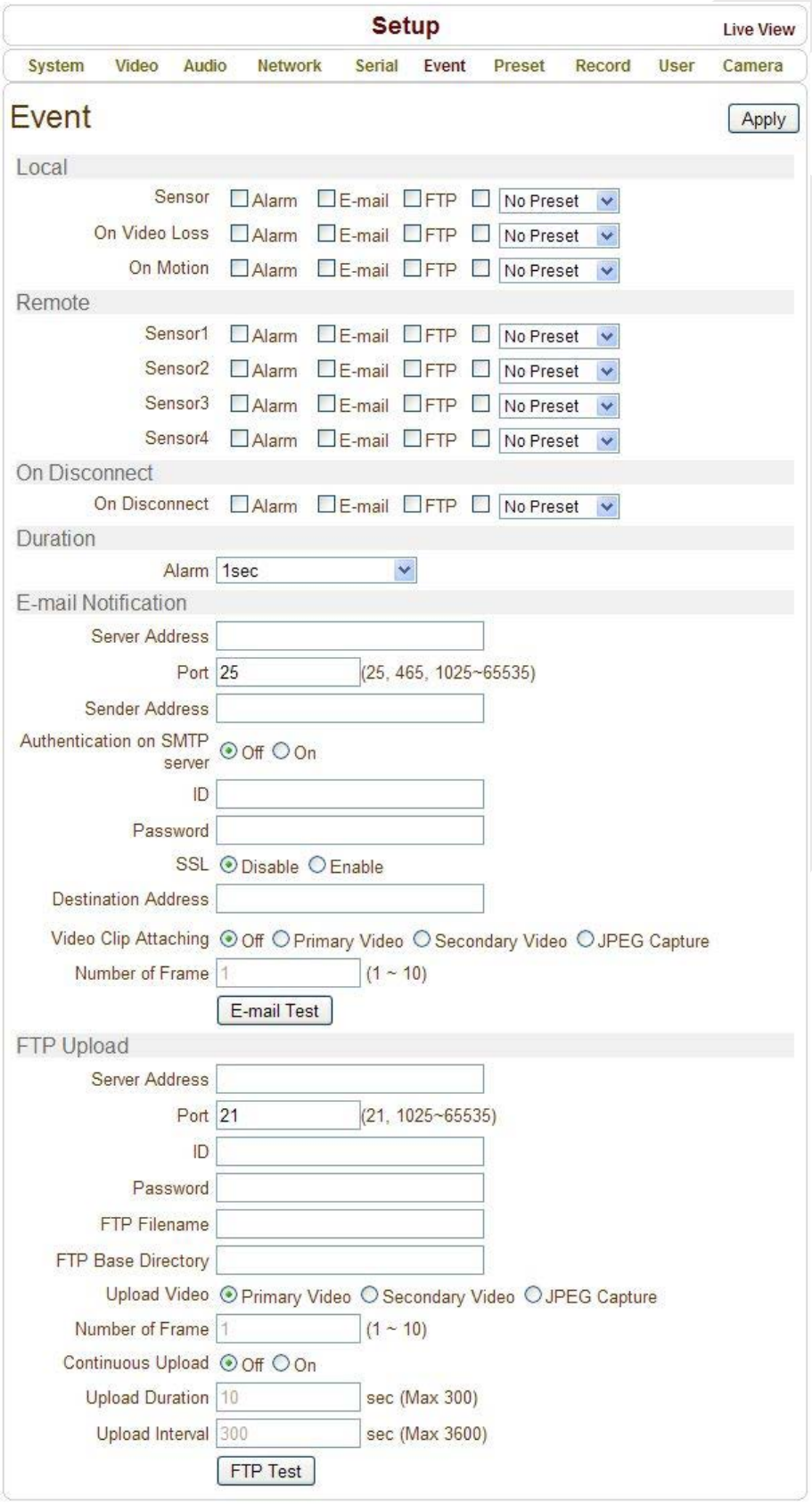
- Click desired "Time Line or Date Line" to set schedule.



- To set all cells in the schedule, click below “Empty Cell”.



Event Con□guration



When a decoder instead of a PC client is connected to an IP camera, one system becomes a Local system and the other a Remote system (Generally a system which is being used by the user is called as Local system). Then, actions for events can be configured for events from the remote system as well as for local system. For example, it is possible to turn on an alarm device in local (center) decoder system when a sensor device in remote (site) IP camera is triggered. **Local** section configures the actions for events from local (self) system, and configuration activates local devices and **Remote** sections configure the actions for events from remote (peer) system.

The following table lists the possible actions for events.

Action	Description
Alarm out	Triggers alarm (relay) port.
E-mail	Sends E-mail to the specified address. AVI file can be attached
FTP	Upload AVI file to a specified FTP server
Preset	Move to the Preset position

Local & Remote Event Configuration

- **Sensor**

  Configure the actions when the sensor is activated. Multiple actions can be set for a single event.

- **On Video Loss**

  Configure the actions when video input signal is lost. Multiple actions can be set for a single event.

- **On Motion**

  Configure the actions when motion is detected. Multiple actions can be set for a single event.

On Disconnect

Configure the actions when the link (connection) with peer system is disconnected. Multiple actions can be set for a single event.

Duration

Set the duration of alarm or beep activation in case of an event. If it is set to continuous, it will be in active state until an operator reset it manually.

E-mail Notification

Specify the information to send event information, when E-mail is selected as an event action.

- **Server Address**

  Enter an address of mail(SMTP) server

- **Port**

  Specify a port for SMTP operation (**Port 25 is the default port in SMTP operation** . If a different port is configured in the SMTP server, this port needs to be changed accordingly).

- **Sender Address**

  Enter an account registered in the SMTP server.

- **Authentication on SMTP server**

  This function is applicable when the E-mail server requires authentication for sending E-mail.

- **ID & password**

  When the server requires authentication, ID and Password of an E-mail account need to be entered.

- **SSL**

  This function is applicable when the E-mail server requires encryption for sending E-mail.

- **Destination address**

  Enter Destination address. More than one address can be entered by delimiting comma (,) or semi-colon (;). Destination address can take up to 63 characters.

- **Video Clip Attaching**

  Video clip stored at the moment of event can be attached as an AVI or JPEG file format. When dual encoding is enabled, **Primary video** , **Secondary video** (H.264 only) or **JPEG Capture** can be selected. The duration of video clip can be configured with **Pre-Event Time** and **Post-Event Time** in **Event Record** section..

- **Number of Frame**

  The number of JPEG frames is configured. This setting is applicable only when **JPEG Capture** is selected.

- **E-mail Test**

  E-mail sending can be tested with this button. Please note that configured settings should be saved first by pressing **Apply** button before using E-mail Test function. One of the following messages will come as a result of the test.

Message	Description
E-mail sent successfully	Test E-mail has been sent successfully. Reception in the client can be checked.
Failed to connect SMTP server	Connection to the SMTP server failed. It is necessary to check if the server is reachable and server address and port are correct.
Authentication failed	The server is reachable but authentication failed. ID and/or password need to be checked.
SMTP server rejected the mail	The server is reachable, but mail sending failed due to a reason other than authentication. This error happens often when the server authenticates according to its own rule. For example, IP addresses of a specific range or addressed of a specific suffix are allowed.

FTP Upload

Specify the information to upload event information, when FTP is selected as an event action'

- **Server Address**

  Enter an address of an FTP server to receive video files

- **Port**

  Specify a port for FTP operation (Port 21 is the default port in FTP operation. If a different port is configured in the FTP server, this port needs to be changed accordingly).

- **ID & password**

  Enter ID and Password for accessing the FTP server.'

- **FTP File name**

  The names of files upload by FTP can be specified by user. If a fixed name is specified, the file is overwritten repeatedly.

  Max length of a file name is 60 characters. If the name is left blank, file name is determined according to the internal rule implemented in the firmware.

  The following macros are supported to form variable parts of file names. The strings are case-sensitive.

  %YYYY : year
  %MM : month
  %DD : day
  %hh : hour
  %mm : minute
  %ss : second
  %EVENT : event type (Sensor1, Motion, ...)
  %ADDR : address of the server (Domain name when DDNS is used.
  Otherwise IPaddress)

  ".avi" or **".jpg"** will be added automatically at the end of the filename depending on the type of video file.

- **FTP Base Directory**

  Specify the name of the directory to be created in the FTP server. It is valid only when **Use Record** is set to **Use FTP on Record session**

- **Upload video**

  Primary Video and **Secondary Video** (H.264 only), **JPEG Capture** can be selected for uploading. The duration of video clip can be configured with **Pre-Event Time** and **Post-Event Time** in **Event Record** section.

- **Number of Frame**

  Enter frame number of JPEG Capture (from 1 to 10).

- **Continuous Upload**

  Continuous upload '**On**' allows video clips to be transmitted regularly regardless of occurrence of events. When this mode is turned on, FTP upload by events is suppressed.

- **Upload Duration**

  Specify recording duration of a video clip to be transmitted. (Max 300 sec).

- **Upload Interval**

  Specify transmission interval. (Max 3600 sec).

  Upload Duration is not included in Upload interval. For example, if Upload interval is 60 seconds and Upload duration is 20seconds, a video clip for 20seconds is transmitted every 80 seconds.

- **FTP Test**

  FTP upload function can be tested with this button. Please note that configured settings should be saved first by pressing **Apply** button before using FTP Test function. One of the following messages will come as a result of the test.

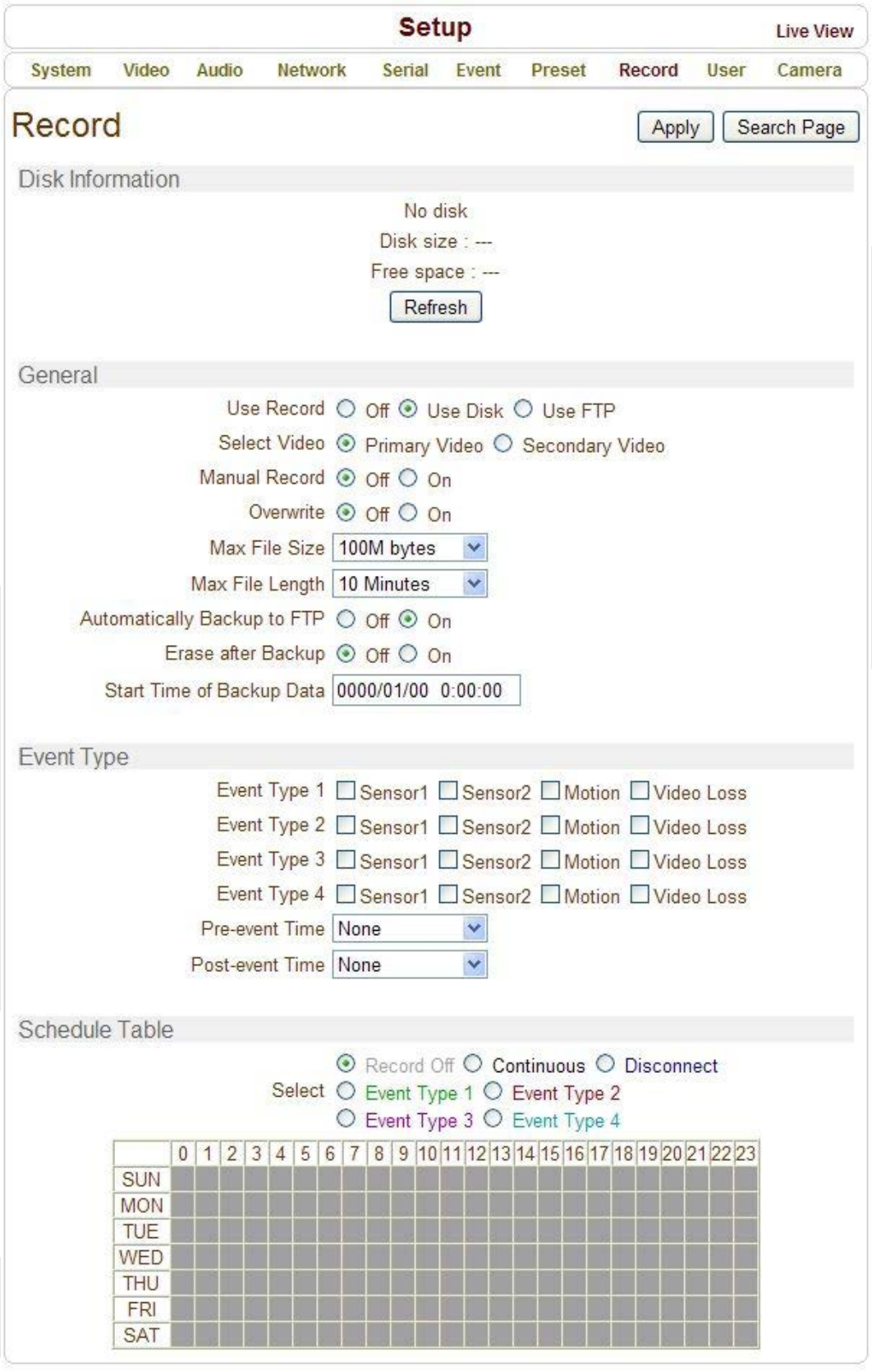
Message	Description
FTP connection tested successfully	The connection to the FTP server is successful.
Failed to connect FTP server	The connection to the FTP server failed. It is necessary to check if the server is reachable and server address and port are correct.
Authentication failed	The server is reachable but authentication failed. ID and/or password need to be checked..
Failed to upload file	File upload failed. The user of the ID is not allowed for writing into the directory or FTP server can be full.
Failed to erase file	Failed to delete the test file. The user of the ID doesn't have the privilege for file deletion.

Preset Con□guration

Preset

- Select preset # and insert the name of preset.
- Set camera position for the preset and press **Save List** button.

Record Con□guration


Setup
Live View
System Video Audio Network Serial Event Preset Record User Camera
Record
Apply
Search Page
Disk Information
No disk
Disk size : ---
Free space : ---
Refresh
General
Use Record Off Use Disk Use FTP
Select Video Primary Video Secondary Video
Manual Record Off On
Overwrite Off On
Max File Size 100M bytes
Max File Length 10 Minutes
Automatically Backup to FTP Off On
Erase after Backup Off On
Start Time of Backup Data 0000/01/00 0:00:00
Event Type
Event Type 1 Sensor1 Sensor2 Motion Video Loss
Event Type 2 Sensor1 Sensor2 Motion Video Loss
Event Type 3 Sensor1 Sensor2 Motion Video Loss
Event Type 4 Sensor1 Sensor2 Motion Video Loss
Pre-event Time None
Post-event Time None
Schedule Table
Record Off Continuous Disconnect
Select Event Type 1 Event Type 2
Event Type 3 Event Type 4
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
SUN
MON
TUE
WED
THU
FRI
SAT

DISK

SD memory can be used, and at least 1GB size is recommended. Either EXT3 or FAT32 file system can be used. A disk with either EXT3 or FAT32 file system can be read in Linux PC. However, only disk with FAT32 file system can be read in Windows PC.

Less than 4Mbps of video bit rate is recommended when you record and monitor video simultaneously since frame dropping may happen due to performance limitation.

Disk information

Be sure to restart the system after connecting an SD card. During booting, the system reads status of disk and initializes it. Once the initialization of a disk is finished, the status of disk is shown on **Record** page of web-based setup.

Refer to the chart for checking the status of disk.

Disk status	Description
Disk error detected	Error
No disk	Disk is not connected to the system.
Searching Disk information	Checking the status of disk. Refresh the page and wait until the status is changed.
Mounting and Recovering Disk...	Performing recovery process when disk damage is found. It takes from seconds to minutes for recovering.
Disk format needed	Disk is attached, but the type of the file system is unknown or damaged.
Unknown disk type detected	
USB Disk available	Available to be used for recording
Disk removed or in abnormal state	Disk is detached during operation or there is damage on the file system. If it happens while disk is connected, it is recommended to format the disk.

General

- **Use record**

- **O□**: Recording function will not be used when **"O□"** is selected
- **Use Disk** : Recording will be enabled and data will be written to a disk
- **Use FTP** : Recording will be enabled and data will be uploaded to an FTP server. In this mode FTP upload by event is automatically disabled.

- **Select Video**

  Select video stream to record.

- **Manual Record**

  When ON is selected, record is operated regardless of schedule.

- **Overwrite**

  When the disk becomes full, the oldest data are deleted automatically. It is valid only when **Use Record** is set to **Use Disk** .

- **Max File Size/Max File Length**

  Max File Size option is for limiting the size of AVI □le. If small □le size is set, □les of small size will be generated but numbers of the □es will be increased. **Max File Length** option is for limiting the time length of AVI □le. If the size of a □e becomes **Max File Size** or the duration of the recording reaches **Max File Length** , a new □e is created.

- **Automatically Backup to FTP**

  Data recorded in the disk can be uploaded to an FTP server automatically for backup. FTP server is con□gured on Event page. It is valid only when **Use Record** is set to **Use Disk** .

- **Erase After Backup**

  Data are deleted in the disk automatically after being uploaded to the FTP server. It is valid only when **Automatically Backup to FTP** is used.

- **Start Time of Backup Data**

  Specify the time of the data in the disk from which Backup to FTP Disk is performed. This time is changed automatically as the backup to FTP server goes. So it is useful to check current backup status. It is valid only when **Automatically Backup to FTP** is used.

l **FTP Base Directory**

Specify the name of the directory to be created in the FTP server. It is valid only when **Use Record** is set to **Use FTP** .

Event Type

Three recording modes are supported: **Continuous** , **Event** , **Disconnect** . In case of Event recording, event types can be selected among several events. Selected event type is used for con□guring the schedule table.
Up to 4 event types can be con□gured and each event type can be a combination of sensor, video loss and motion event.

l **Pre-event Time**

Specify the duration of recording before an event happens.

l **Post-event Time**

Specify the duration after the event is cleared.

Schedule Table

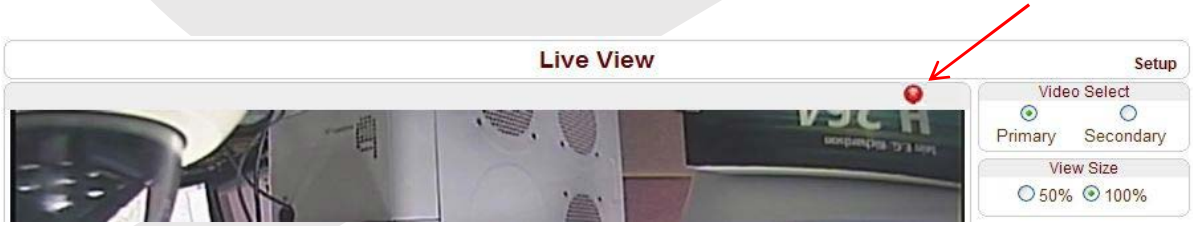
Actual recording mode is determined by **Schedule Table** , where recording mode con□gured by day (of a week) and hour.

Each of recording mode con□gures the recording operation as follows:

- **Record o□** : No recording
- **Continuous** : Records continuously
- **Disconnect** : Recording is started when the system loses the connection to its last client(Decoder, VMS/NVR) etc. When there are multiple clients and one of the client is disconnected, this doesn't happen.
- **Event Type** : Records when an event con□gured in **Event Type** setting happens.

Checking status of recording

Recording status can be checked on the main view page.



Search and Playback

Recorded video and audio data can be saved as AVI format in the disk. In general, one AVI file is created for an event in case of event-based recording. However, it is possible that recorded data by serious of events happening continuously can be merged to a single AVI file depending on pre/post event time setting. The size of file is limited to 10 ~ 200MB or 10 minutes. In case of continuous recording, AVI files are created in series and the size of each is limited to 10 ~ 200MB or 10 minutes.

l **Search**

Actual recording A file currently being recorded doesn't appear until it is completed. In case of Continuous recording, a file will be shown after 10 minutes from the start of recording, for a file is generated every 10 minutes.

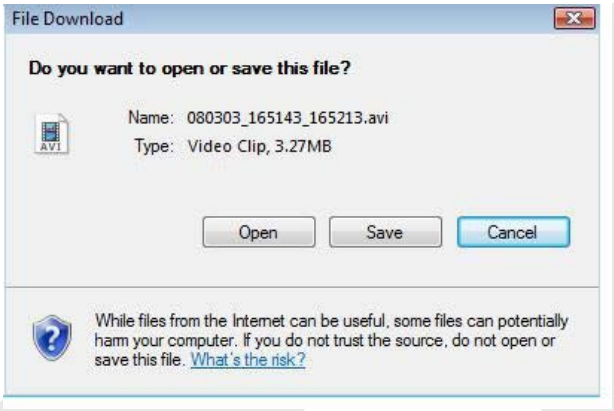
1. Press **Search Page** button on the **Record** setup page. Dates with recording data will be shown as follows.

2. First, choose the date for search and the list of AVI files will be shown.
3. The file name shows the date and time: " **Date Begin Time End Time.avi** ".

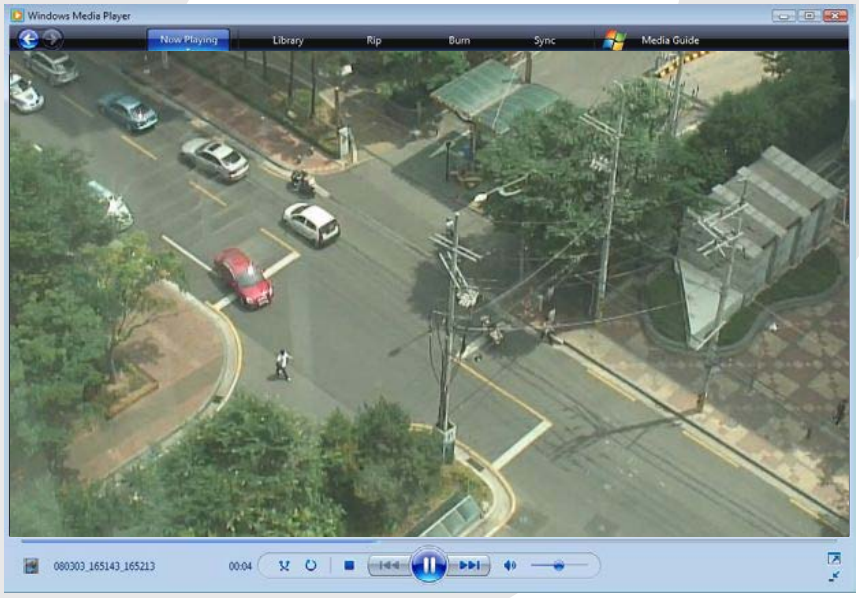
4. Press **Root** to move back to the page with date list.

l **Playback**

1. Selecting an AVI □le will show a dialog for opening or saving the □le .


File Download
Do you want to open or save this file?
Name: 080303_165143_165213.avi
Type: Video Clip, 3.27MB
Open
Save
Cancel
While files from the Internet can be useful, some files can potentially harm your computer. If you do not trust the source, do not open or save this file. What's the risk?

2. Pressing **Save** button, the □le will be stored in the PC. The AVI □le can be played with Windows Media Player.



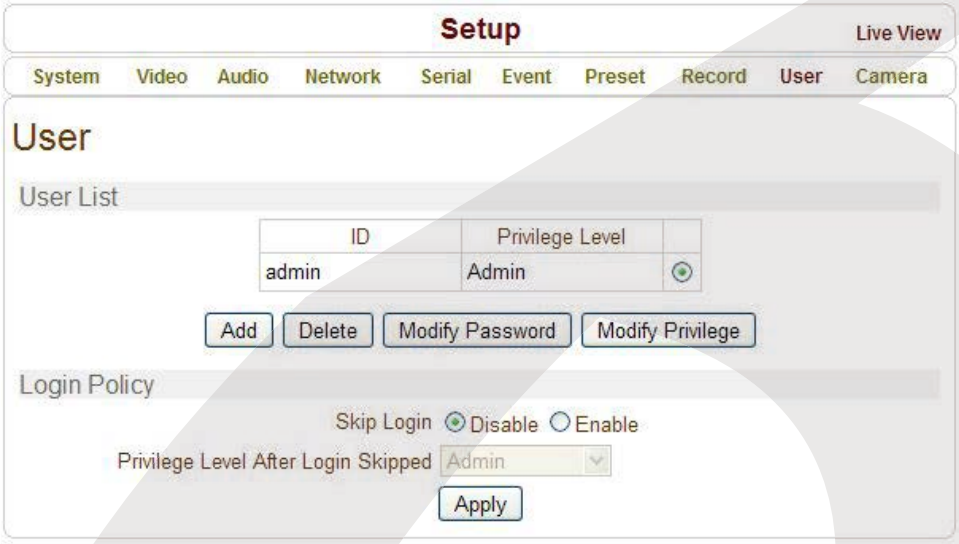
3. If you press **Open** in the dialog, the □le will be downloaded and played automatically with Media Player.
4. Another connection through web is disabled during downloading and it is also not allowed to download two AVI □les at the same time.

l **Deletion of data**

1. If you want to delete recorded files, select the files by checking the item in front of each file and press **Delete** button.

2. It is possible to delete multiple files at once.

User Con□guration



User List

l User can be registered and privilege level of a user can be speci□ed. User con□guration is allowed only to admin user. Max 16 users can be registered and each user can have one of four privileges.

Privilege	Allowed Operations	Remarks
Admin	All operations	User ID = admin
Manager	All operations except for user con□guration	
User	Live viewing and PTZ control	
Guest	Live viewing only	

l **Add User**

Press **Add** button. The following window will appear.

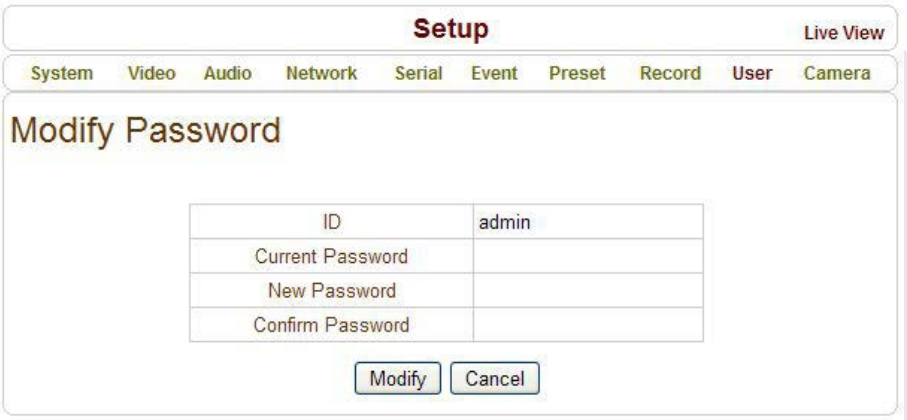
Enter User ID and password (Up to 15 characters) and select **Privilege Level**

- **Delete User**

  Select the User to be deleted and press **Delete** button.

- **Change Password**

  Press **Modify Password** button. The following window will appear.



  Enter the current password and then set a new password.

- **Modify Privilege Level**

  Press **Modify Privilege** button to change User level. It is not allowed to change the privilege level of admin user.

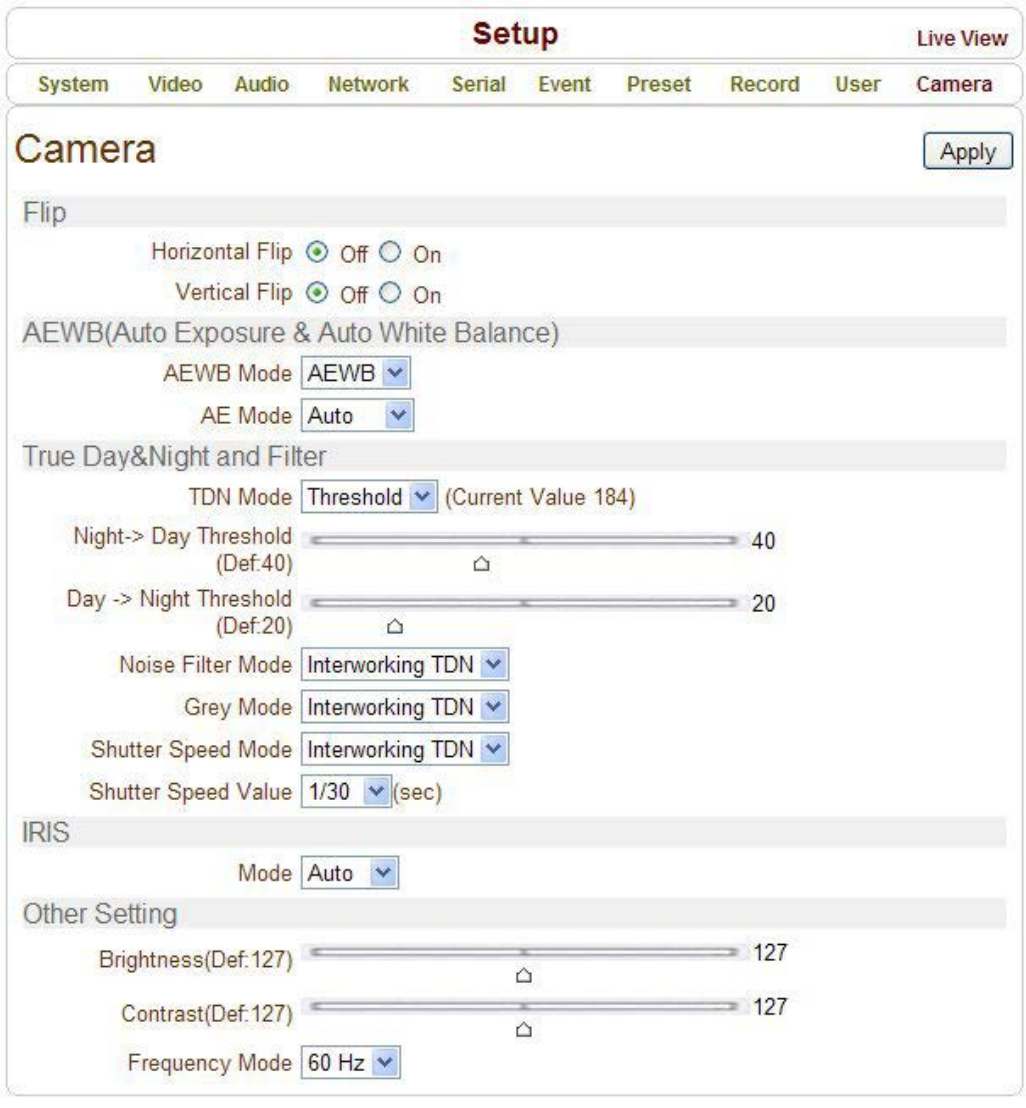
Login Policy

- **Authentication Type**

  HTTP authentication based on RFC 2617(HTTP Authentication: Basic and Digest Access Authentication) is supported.

- **Skip Login** provides for convenient access to the server when authentication is not required. When Skip Login is set to **Enable**, login step is skipped. The privilege level after login in this way is determined by the setting of **Privilege Level After Login Skipped** .

Camera Con□guration



Flip

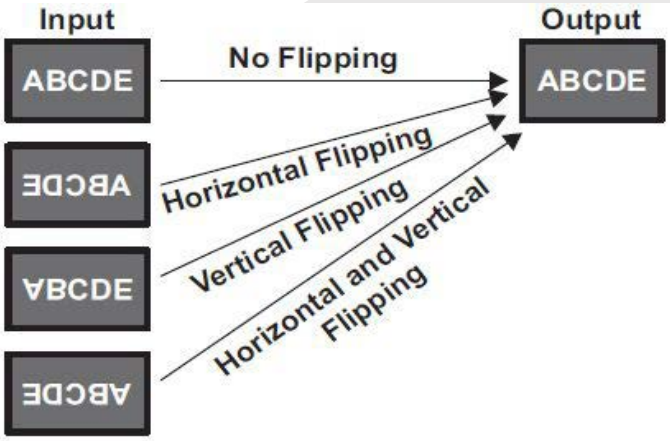
- **Horizontal Flip**

  The image appear left and right side cosses when “on” is selected.

- **Vertical Flip**

  The image appear up and down side croses when “on” is seleted.

Refer to the principle of □lpping image



Auto Exposure & Auto White Balance (AE & AWB)

AE control gain , iris and exposure time for image quality automatically.

AWB control R,G,B gain for color balance automatically.

- **AE\WB Mode**

  AE\WB : AE & AWB function is enable

  AE : Only AE function is enable

  AWB : Only AWB function is enable

  None : AE & AWB function is disable

- **AWB Index**

  Indoor : Select this option when camera is installed at indoor

  Outdoor, Select this option when camera is installed at outdoor

- **AE Index**

  Day : Select this option when you want better image quality.

  Night : Select this option when you want brighter image.

- **AE Mode**

  Auto : AE adjust brightness by internal value automatically.

  Manual : AE adjust brightness by the values which are AE Target, AE MAX and AE MIN

- **AE Target**

  The AE target can be adjusted in the range 0-40. Lower value mean darker image. This is used on AE mode.

- **AE MAX**

  The AE MAX can be adjusted in the range 0-45.

- **AE MIN**

  The AE MIN can be adjusted in the range 0-35.

  The changes of image become insensitive if the value is lower and sensitive if the value is larger in case of these both AE MAX and AE MIN.

True Day & Night(TDN)

Megapixel IP camera use IR filter for image quality. IR filter is on during day and off during night.

- **TDN Mode**

  Threshold : TDN is controlled by day & night threshold value

  Auto : TDN is controlled by internal value

  Day : TDN is made on day mode forcibly

  Night : TDN is made on night mode forcibly

- **Day Threshold**

  The Day Threshold can be adjusted in the range 0-40. TDN is recognised as day and turn on IR Filter when brightness is bigger than the value .

- **Night Threshold**

  The Night Threshold can be adjusted in the range 0-20. TDN is recognised as Night and turn on IR Filter when brightness is lower than the value.

- **Noise Filter Mode**

  The Noise Filter Mode interworks with TDN. The noise filter mode is on during night and off during day.

  On : Noise filter is on always

  Off : Noise filter is off always

- **Grey Mode**

  The Grey Mode interworks with TDN. The grey filter mode is on during night and the color is If TDN decide on night, then image remove color(grey image)

  Image add color (color image) when TDN decide on day.

  On : image remove color always (gery image)

  Off : image add color always (color image)

- **Shutter Speed Mode**

  Shutter Speed Mode configures whether Shutter Speed Value setting is to be applied or not. Enabling Shutter Speed Mode is useful to get brighter video in a low illumination environment by sacrificing the framerate.

  On : Shutter Speed setting is applied

  Off : Shutter Speed setting is not applied

- **Shutter Speed Value**

  Shutter speed can be selected in the range of 1/30 sec to 1 sec. When 1/6 sec is selected for example, the image sensor is exposed for 1/6 sec, and thus max 6 frames can be obtained for one second.

IRIS

Megapixel IP camera support Auto IRIS Lens

- **Mode**

  Auto : IRIS is controlled by AE

  Open : IRIS force max opening

  Close : IRIS force closing

Other Setting

- **Brightness**

  The image brightness can be adjusted in the range 0-255 where a highter value produses a brighter image.

  (127 : default, 0 : the darkest, 255 : the brightst)

- **Contrast**

  Adjust the image's contrast by rasing or lowering the value in this field.

  (127 : default, 0 : the weakest, 255 : the strongest)

- **Frequency Mode**

  Operation frequency can be selected in order to avoid flickering under fluorescent light. The value can be either 50Hz or 60Hz.

  (127 : default, 0 : the weakest, 255 : the strongest)